

WE CLAIM:

1. An antibody that specifically binds to a polypeptide having amino acid sequence SEQ ID NO: 2 or SEQ ID NO: 4.
2. An antibody that specifically binds the polypeptide of claim 1, wherein said antibody is a monoclonal antibody, or antigen-binding fragment thereof.
3. A pharmaceutical composition comprising an anti-LAX antibody specific for cells that cause a disorder selected from the group consisting of inflammatory disorders, autoimmune diseases, allergic reaction, organ and tissue rejection, and hematopoietic-based cancers, wherein said antibody specifically binds to a polypeptide having an amino acid sequence of SEQ ID. NO: 2 or SEQ ID NO: 4, or immunogenic fragment thereof.
4. The pharmaceutical composition of claim 3, wherein said antibody is a monoclonal anti-LAX antibody, or antibody fragment thereof.
5. The pharmaceutical composition of claim 3, wherein said antibody is labeled with a radioisotope.
6. The pharmaceutical composition of claim 3, wherein said antibody is labeled with a toxin.
7. The pharmaceutical composition of claim 3, wherein said antibody is administered in an amount effective to kill or inhibit the growth of cells that cause a disorder selected from the group consisting inflammatory disorders, autoimmune diseases, allergic reaction, organ and tissue rejection, and hematopoietic-based cancers.
8. A method of targeting LAX protein on cells that cause a disorder selected from the group consisting of inflammatory disorders, autoimmune diseases, allergic reaction, organ and tissue rejection, and hematopoietic-based cancers, comprising the step of administering a composition to said cells in an amount effective to target said LAX-expressing cells, wherein said composition is an anti-LAX antibody that specifically binds to

a polypeptide having an amino acid sequence of SEQ ID NO: 2 or SEQ ID NO: 4, or an immunogenic fragment thereof.

9. A method of killing or inhibiting the growth of LAX-expressing cells that
5 cause a disorder selected from the group consisting of inflammatory disorders, autoimmune diseases, allergic reaction, organ and tissue rejection, and haematopoietic-based cancers, comprising the step of administering a composition to said cells in an amount effective to kill or inhibit the growth of said cells, wherein said composition is an anti-LAX antibody that specifically binds to a polypeptide having an amino acid sequence of SEQ ID. NO: 2, or
10 SEQ ID NO: 4, or an immunogenic fragment thereof.

10. A method of killing or inhibiting the growth of LAX-expressing cells that cause a disorder selected from the group consisting of inflammatory disorders, autoimmune diseases, allergic reaction, organ and tissue rejection, and hematopoietic-based cancers,
15 comprising the step of administering a composition to said cells in an amount effective to kill or inhibit the growth of said cells, wherein said composition comprises a LAX antigen.

11. A method of killing or inhibiting the growth of LAX-expressing cells that cause a disorder selected from the group consisting of inflammatory disorders, autoimmune diseases, allergic reaction, organ and tissue rejection, and hematopoietic-based cancers,
20 comprising the step of administering a composition to said cells in an amount effective to kill or inhibit the growth of said cells, wherein said composition comprises a nucleic acid of encoding LAX, or immunogenic fragment thereof, within a recombinant vector.

25 12. A method of killing or inhibiting the growth of LAX-expressing cells that cause a disorder selected from the group consisting of inflammatory disorders, autoimmune diseases, allergic reaction, organ and tissue rejection, and hematopoietic-based cancers, comprising the step of administering a composition to said cells in an amount effective to kill or inhibit the growth of said cells, wherein said composition comprises an antigen-
30 presenting cell comprising a nucleic acid encoding LAX, or immunogenic fragment thereof, within a recombinant vector.

13. A method of killing or inhibiting the growth of LAX-expressing cells that cause a disorder selected from the group consisting of inflammatory disorders, autoimmune diseases, allergic reaction, organ and tissue rejection, and hematopoietic-based cancers, comprising the step of administering a composition to said cells in an amount effective to
5 kill or inhibit the growth of said cells, wherein said composition comprises a small molecule that specifically binds to a polypeptide having an amino acid sequence of SEQ ID NO: 2, or SEQ ID NO: 4, or immunogenic fragment thereof.

14. A method of killing or inhibiting the growth of LAX-expressing cells that
10 cause a disorder selected from the group consisting of inflammatory disorders, autoimmune diseases, allergic reaction, organ and tissue rejection, and hematopoietic-based cancers, comprising the step of administering a composition to said cells in an amount effective to kill or inhibit the growth of said cells, wherein said composition comprises a non-LAX polypeptide that specifically binds to a polypeptide having an amino acid sequence of SEQ
15 ID NO: 2, or SEQ ID NO: 4, or immunogenic fragment thereof.

15. The method according to any one of claims 8-14, wherein said cells are contacted with as second therapeutic agent.

20 16. The method according to any one of claims 8-14, wherein said anti-LAX antibody composition is administered in an amount effective to achieve a dosage range from about 0.1 to about 10 mg/kg body weight.

25 17. The method according to any one of claims 8-14 wherein said pharmaceutical composition is administered in a sterile preparation together with a pharmaceutically acceptable carrier.

18. A method of diagnosing a disorder selected from the group consisting of inflammatory disorders, autoimmune diseases, allergic reaction, organ and tissue rejection,
30 and hematopoietic-based cancers, comprising the steps of:
(a) detecting or measuring the expression of LAX protein on a cell; and
(b) comparing said expression to a standard indicative of said disease.

19. A method of diagnosing a disorder selected from the group consisting of inflammatory disorders, autoimmune diseases, allergic reaction, organ and tissue rejection, and hematopoietic-based cancers, comprising the steps of:

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- (a) detecting or measuring the expression of LAX protein in said disease;
 - (b) comparing said expression to normal tissue.

20. The method according to claim 18 or 19, wherein said expression is LAX mRNA expression.

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21. The method according to claim 18 or 19, wherein said expression is detected or measured using anti-LAX antibodies.

22. Use of an anti-LAX antibody in preparation of a medicament for killing or inhibiting the growth of LAX-expressing cells that cause a disorder selected from the group consisting of inflammatory disorders, autoimmune diseases, allergic reaction, organ and tissue rejection, and hematopoietic-based cancers, wherein said antibody specifically binds to a polypeptide having the amino acid sequence of SEQ ID NO: 2, or immunogenic fragment thereof.

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23. Use of a LAX antigen in preparation of a medicament for killing or inhibiting the growth of LAX-expressing cells that cause a disorder selected from the group consisting of inflammatory disorders, autoimmune diseases, allergic reaction, organ and tissue rejection, and hematopoietic-based cancers, wherein said antigen elicits an immune response specific to said LAX-expressing cells.

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24. Use of a nucleic acid encoding LAX or immunogenic fragment thereof, within a recombinant vector, in preparation of a medicament for killing or inhibiting the growth of LAX-expressing cells that cause a disorder selected from the group consisting of inflammatory disorders, autoimmune diseases, allergic reaction, organ and tissue rejection, and hematopoietic-based cancers.

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25. Use of an antigen-presenting cell comprising a nucleic acid encoding LAX or immunogenic fragment thereof, within a recombinant vector, in preparation of a medicament for killing or inhibiting the growth of LAX-expressing cells that cause a disorder selected from the group consisting of inflammatory disorders, autoimmune diseases; allergic reaction, organ and tissue rejection, and hematopoietic-based cancers.

26. Use of a small molecule that specifically binds the LAX polypeptide having an amino acid sequence of SEQ ID NO: 2, or SEQ ID NO: 4, or immunogenic fragment thereof, in preparation of a medicament for killing or inhibiting the growth of LAX-expressing cells that cause a disorder selected from the group consisting of inflammatory disorders, autoimmune diseases, allergic reaction, organ and tissue rejection, and hematopoietic-based cancers.

27. Use of a non-LAX polypeptide that specifically binds a LAX polypeptide having an amino acid sequence of SEQ ID NO: 2 or SEQ ID NO: 4, or immunogenic fragment thereof, in preparation of a medicament for killing or inhibiting the growth of LAX-expressing cells that cause a disorder selected from the group consisting of inflammatory disorders, autoimmune diseases, allergic reaction, organ and tissue rejection, and hematopoietic-based cancers.